

CLAIMS

1. A maintenance system for a set of equipment comprising:

- 5 - electronic circuits for monitoring proper operation (1a, 2a, 3a,...) of each piece of equipment (1, 2, 3,...), each furnished with means for formulating tests of proper operation and for issuing fault messages should the tests (400, 401) fail, as well as a nonvolatile memory (405) integral with the monitored piece of equipment,
- 10 - a central maintenance computer (7) allied with said electronic circuits for monitoring proper operation (1, 2a, 3a,...), provided with means of diagnosis of the state of operation of the set of equipment (1, 2, 3,...), functioning on the basis of the fault messages of said electronic circuits for monitoring proper operation (1, 2a, 3a,...) and formulating a report regarding the overall state of operation of the set of equipment (1, 2, 3,...),
- 15 - one or more data transmission links (10) linking said electronic circuits for monitoring proper operation (1a, 2a, 3a,...) to the central maintenance computer (7),
- 20 said maintenance system for a set of equipment (1, 2, 3,...) being characterized in that the central maintenance computer (7) comprises means for making its report regarding the overall state of operation of the set of equipment (1, 2, 3,...) available on the data transmission link or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) and in that the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) comprise means of detection, capture and transfer (403, 413, 423) into their nonvolatile memories (405) integral with the equipment, of the report regarding the overall state of operation of the set of equipment
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(1, 2, 3,...) formulated by the central maintenance computer (7) when this report travels over said transmission link or links (10) linking the electronic circuits for monitoring proper operation 5 (1a, 2a, 3a, etc.) to the central maintenance computer (7).

2. The system as claimed in claim 1, in which pieces of equipment (3, 4, 5, 6) are grouped together in 10 subsets (11) themselves furnished, at their upper level of assemblage, with electronic circuits for monitoring proper operation (11a) generating fault messages relating to said subsets (3, 4, 5, 6) destined for the central maintenance computer (7), characterized in that 15 the electronic circuits for monitoring proper operation (3a, 4a, 5a, 6a) of these pieces of equipment (3, 4, 5, 6) grouped into one and the same subset (11) are also furnished with means of detection, capture and transfer (403, 413, 423) into their nonvolatile 20 memories (405) integral with the equipment, of the fault messages issued by the (11a) or the electronic circuits for monitoring proper operation of the subset(s) (11) to which the pieces of equipment (3, 4, 5, 6) belong, when these messages travel over 25 said transmission link or links (10) linking the electronic circuits for monitoring proper operation (3a, 4a, 5a, 6a, 11a) to the central maintenance computer (7).

30 3. The system as claimed in claim 1, in which pieces of equipment (2, 3) comprise parts (20, 21, 22, 23, 30, 31, 32) themselves furnished, at their lower level of assemblage, with electronic circuits for monitoring proper operation (20a, 21a, 22a, 23a, 30a, 31a, 32a) 35 generating fault messages relating to said equipment parts (20, 21, 22, 23, 30, 31, 32) destined for the central maintenance computer (7), characterized in that the electronic circuits for monitoring proper operation (20a, 21a, 22a, 23a, 30a, 31a, 32a) of these equipment

parts (20, 21, 22, 23, 30, 31, 32) are also furnished with means of detection, capture and transfer (403, 413, 423) into their nonvolatile memories (405) integral with the equipment parts, of fault messages 5 issued by the circuit or circuits for monitoring proper operation (2a, 3a) of the piece or pieces of equipment (2, 3) to which the equipment parts (20, 21, 22, 23, 30, 31, 32) belong when they travel over said transmission link or links (10) linking the 10 electronic circuits for monitoring proper operation (1a, 2a, 3a, etc.) to the central maintenance computer (7).

4. The system as claimed in claim 1, in which pieces 15 of equipment (3) comprise parts (30, 31, 32) themselves furnished, at their lower level of assemblage, with electronic circuits for monitoring proper operation (30a, 31a, 32a) generating fault messages relating to said equipment parts (30, 31, 32) destined for the 20 central maintenance computer (7), and where the pieces of equipment (3) which comprise these equipment parts (30, 31, 32) are grouped together with other pieces of equipment (4, 5, 6) in subsets (11) themselves furnished, at their upper level of assemblage, with 25 electronic circuits for monitoring proper operation (11a) generating fault messages relating to said subsets (11) destined for the central maintenance computer (7), characterized in that the electronic circuits for monitoring proper operation (30a, 31a, 32a) 30 of the parts (30, 31, 32) of these pieces of equipment (3) are also furnished [lacuna] means (403) of detection, capture and transfer (403, 413, 423) into their nonvolatile memories (405) integral with the equipment parts, of fault messages issued by the 35 circuit or circuits for monitoring proper operation (3a, 11a) of the piece or pieces of equipment (3) and of the subset(s) of equipment (11) to which the equipment parts (30, 31, 32) belong, when these messages travel over said transmission link or links

(10) linking the electronic circuits for monitoring proper operation (1a, 2a, 3a, etc.) to the central maintenance computer (7).

5 5. The system as claimed in claim 1, in which pieces
of equipment (3) comprise parts (30, 31, 32) themselves
furnished, at their lower level of assemblage, with
electronic circuits for monitoring proper operation
(30a, 31a, 32) generating fault messages relating to
10 said equipment parts (30, 31, 32) destined for the
central maintenance computer (7), characterized in that
the electronic circuits for monitoring proper operation
(3a, 11a) of these pieces of equipment (3) are also
15 furnished with means (403) of detection, capture and
transfer (403, 413, 423) into their nonvolatile
memories (405) integral with the equipment, of the
fault messages issued at the lower level of assemblage
by the circuit or circuits for monitoring proper
20 operation (30a, 31a, 32a, 3a, 4a, 5a, 6a) of the
equipment parts (30, 31, 32) of which they are composed
when these messages travel over said transmission link
or links (10) linking the electronic circuits for
monitoring proper operation (1a, 2a, 3a, etc.) to the
25 central maintenance computer (7).

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6. The system as claimed in claim 1, in which pieces
of equipment (3) comprise parts (30, 31, 32) themselves
furnished, at their lower level of assemblage, with
electronic circuits for monitoring proper operation
30 (30a, 31a, 32) generating fault messages relating to
said equipment parts (30, 31, 32) destined for the
central maintenance computer (7), and where the pieces
of equipment (3) which comprise these equipment parts
(30, 31, 32) are grouped together with others (4, 5, 6)
35 in subsets (11) themselves furnished, at their upper
level of assemblage, with electronic circuits for
monitoring proper operation (11a) generating fault
messages relating to said subsets destined for the
central maintenance computer (7), characterized in that

the electronic circuits for monitoring proper operation (3a, 11a) of these pieces of equipment (3) are also furnished with means (403) of detection, capture and transfer (403, 413, 423) into their nonvolatile 5 memories (405) integral with the equipment, of the fault messages issued at the lower level of assemblage by the circuit or circuits for monitoring proper operation (30a, 31a, 32a, 3a, 4a, 5a, 6a) of their equipment parts (30, 31, 32) and, at the upper level of 10 assemblage, by the circuit or circuits for monitoring proper operation of the pieces of equipment (3, 4, 5, 6) belonging to the same subset, when these messages travel over said transmission link or links (10) linking the electronic circuits for monitoring 15 proper operation (1a, 2a, 3a, etc.) to the central maintenance computer (7).

7. The system as claimed in claim 1, comprising a printer (9) linked to the central maintenance computer 20 (7) by the or one of said data transmission links (10) attaching the central maintenance computer (7) to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...), characterized in that the means of the central maintenance computer (7) which make its 25 report on the overall state of operation of the set of equipment (1, 2, 3,...) available on the data transmission link or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) are also the means of making its report on the overall state of operation of the set 30 of equipment (1, 2, 3,...) available to the printer (9).

8. The system as claimed in claim 1, comprising a 35 keyboard/screen interface (8) linked to the central maintenance computer (7) by the or one of said data transmission links (10) attaching the central maintenance computer (7) to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...),

characterized in that the means of the central maintenance computer (7) which make its report on the overall state of operation of the set of equipment (1, 2, 3,...) available on the data transmission link 5 or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) are also the means of means of making its report on the overall state of operation of the set of equipment (1, 2, 3,...) available to the keyboard/screen 10 interface (8).

9. The system as claimed in claim 1, associated with an airborne external telecommunication network linked to the central maintenance computer (7) by the or one 15 of said data transmission links (10) attaching the central maintenance computer (7) to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...), characterized in that the means of the central maintenance computer (7) which make its report on the overall state of operation of the set of equipment 20 (1, 2, 3,...) available on the data transmission link or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) are also the means of means of making its report on the overall 25 state of operation of the set of equipment (1, 2, 3,...) available to the airborne external telecommunication network.